

# Bench Gage (Dial Type/Digital Type)

User's Manual  
No.99MAG019B1  
Series No.7•547

## Introduction

Read this User's Manual thoroughly before using the gage. After reading, retain it close at hand for future reference.

### 1. Safety Precautions



Caution

- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

### 2. On Various Types of Notes

#### IMPORTANT

- An important note provides information essential to the completion of a task.
- An important note is a type of precaution, which if neglected could result in a loss of data, decreased accuracy or instrument malfunction/failure.

#### NOTE

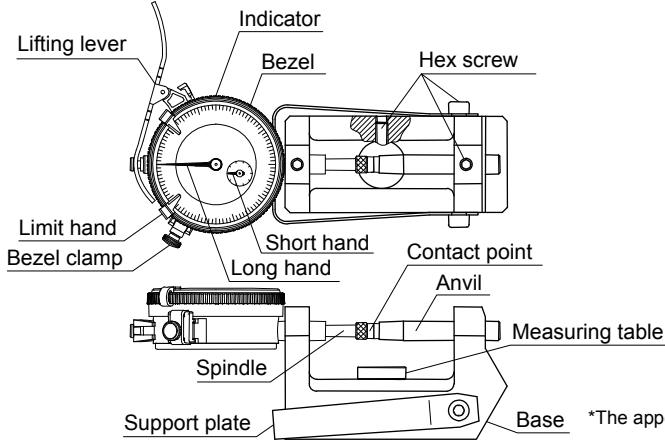
- A note emphasizes or supplements important points of the main text.

### 3. Operating Environment

#### IMPORTANT

- Use the gage in an environment with a temperature of 0 to 40°C and a relative humidity of 30 to 70%.
- Avoid sudden changes in temperature. Condensation may negatively affect the performance of the gage.
- Use the gage in a place with minimal exposure to dust, oil and oil mist.
- Use the gage in a place out of direct sunlight.

### 4. Name of each part



\*The appearance of a gage varies with the model.

### 5. Specifications

Code No.	Measuring Range (Individual Indicator)	Accuracy	Indicator	Graduation	Contact point	Measuring Table			Anvil Stroke
						Diameter	Flatness	Stroke	
7060	0 to 23 mm (0 to 10 mm)	±15 μm	2046SB	0.01 mm	φ 6.3 flat contact point	φ 20	5 μm	10 mm	13 mm
547-064	0 to 25 mm (0 to 12 mm)	±20 μm	543-400BS (ID-C1012XBS)	0.01 mm	φ 6.3 flat contact point	φ 20	5 μm	10 mm	13 mm
547-066S	0 to 1" / 0 to 25 mm (0 to .5" / 0 to 12 mm)	±.001"	543-402BS (ID-C1012EXBS)	.0005" /0.01 mm	.25"DIA flat contact point	φ 20	5 μm	10 mm	.5"

### 6. Notes on Use

#### IMPORTANT

- Do not suddenly activate the spindle or apply an excessive horizontal load.
- Be sure to check the accuracy of gage if it has been dropped or otherwise subjected to shock.
- Ensure that the spindle and hands operate smoothly. Also check that the digital display is working properly.
- Ensure that the contact point and screw are not loose.
- Regularly check and adjust the reference point when using the gage in a place subject to temperature variation.
- A resin spacer is in the sliding part of a lifting lever. This spacer supports the movement of the lifting lever so that it should not be removed.

### 7. Attaching and Removing Limit Hand (Dial Type)

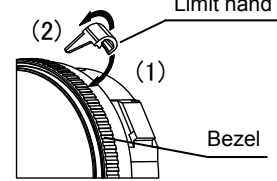
Separate the limit hand  
before attaching it.



Caution

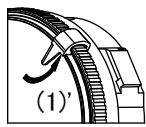
Take care not to  
injure yourself when  
separating the limit  
hand or handling the  
separated parts.

#### 〈Attachment〉



- (1): Attach the limit hand to the bezel.  
(2): Push the limit hand all the way until it clicks.

#### 〈Removal〉



- (1'): To remove the limit hand push it up in the direction of the arrow.

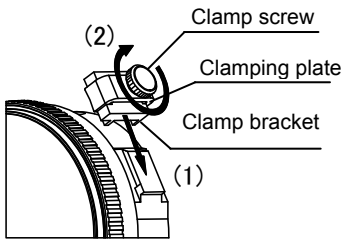
Mitutoyo

### 8. Attaching Bezel Clamp (Dial Type)

#### 〈Attachment〉

- (1): Insert clamp bracket in the dovetail groove  
(2): Fix with clamp screw.

**Note** Take note that the clamp may loosen or fall off under vibration.



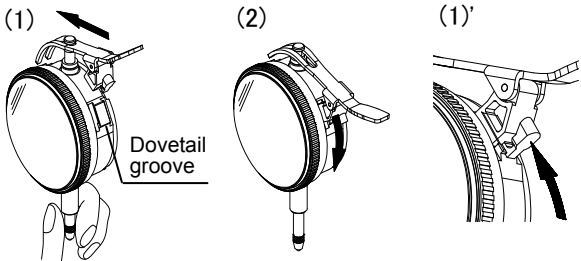
### 9. Attaching and Removing the Lifting Lever

#### 〈Attachment〉

- (1): Lift the spindle and fit the forked end of the lifting lever to the spindle stop under the spacer.  
(2): Fit the lifting lever into the dovetail groove and fix in position by pushing down in the direction of the arrow.

#### 〈Removal〉

- (1'): Push the finger rest up in the direction of the arrow and remove the lifting lever.



### 10. Instructions for Use

- Wipe the contact point and the measuring surface of the anvil to remove any dust.
- Adjust the height of the measuring table and fix it using hex screws.
- Adjust the position of the anvil and fix it using hex screws.
- Adjust the support plate, place the gage on an angle and fix it using hex screws. Make sure that the gage is on a suitable angle so that the indicated value can be easily read.
- Set the reference point.

Set the anvil measuring surface or master gage (gauge block, etc.) as the reference surface.

Use the lifting lever and release to move the contact point up and down several times. Check that the graduation value when the contact point touches the reference surface is stable.

- Dial type gage ..... Adjust the long hand so that it points to the zero graduation mark by rotating the bezel.
- Digital type gage ..... Press the ZERO/ABS button. (This is useful when the master gage is set as the reference surface because the measurement value can be automatically read by using the PRESET function. See the Digimatic Indicator User's Manual for details of the PRESET function.)

Use the lifting lever and release again to check that the reference point has not shifted.

#### 6) Measure the workpiece.

Use the lifting lever and release to slowly bring the contact point into contact with the workpiece.

Repeat this several times and read the value after checking that the graduation value is stable.

**NOTE** If a master gage is used to set zero, the measured dimension will be the sum of the indicated value and the master gage dimension. (It can not be applied when using the PRESET function.)

### 《Reference》Tolerance judgment

It is possible to judge whether the workpiece dimensions are within the tolerance range by comparing the workpiece dimensions using the master gage dimensions as a reference.

- Dial type gage ..... Set the tolerance by attaching a limit hand to the positions of the upper and lower limit values. Judge whether the workpiece dimensions are within the tolerance range by determining whether the long hand points within the allowable range indicated by the limit hands when the workpiece is measured. Be aware of the value indicated by the short hand to avoid misreading one rotation of the long hand.
- Digital type gage ..... Set the tolerance by using the tolerance setting function. Judge whether the workpiece dimensions are within the tolerance range via the symbol that is displayed when the workpiece is measured. (See the Digimatic Indicator User's Manual for details of the tolerance setting function.)

### 11. Maintenance and Repairs

#### IMPORTANT

- When carrying the gage, be sure to hold the frame so that you do not drop the unit.
- Remove dirt or dust from the sliding surface of the spindle using a dry cloth or a cloth on which a small amount of alcohol has been applied.
- Remove dirt or dust on the bezel or digital display surface using a soft dry cloth or a cloth on which a neutral detergent has been applied. Do not use substances other than a neutral detergent to clean the bezel or digital display surface.
- Apply an anti-rust oil containing a small amount of anti-rusting agent to the measuring table before storing the gage.
- The performance deterioration of this gage differs greatly depending on the usage conditions. Customers are therefore advised to establish in-house standards that take into consideration the actual usage frequency, environment, and method, and perform regular maintenance checks on the gage based on these standards.
- Mitutoyo does not guarantee the performance of this gage if repair or disassembly has been performed by other than Mitutoyo.